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Abstract of the Disclosure

An ultraviolet (UV) catadioptric imaging system, with broad spectrum correction of primary and residual, longitudinal and lateral, chromatic aberrations for wavelengths extending into the deep UV (as short as about 0.16 μm), comprises a focusing lens group with multiple lens elements that provide high levels of correction of both image aberrations and chromatic variation of aberrations over a selected wavelength band, a field lens group formed from lens elements with at least two different refractive materials, such as silica and a fluoride glass, and a catadioptric group including a concave reflective surface providing most of the focusing power of the system and a thick lens providing primary color correction in combination with the focusing lens group. The field lens group is located near the intermediate image provided by the focusing lens group and functions to correct the residual chromatic aberrations. The system is characterized by a high numerical aperture (typ. greater than 0.7) and a large flat field (with a size on the order of 0.5 mm). The broad band color correction allows a wide range of possible UV imaging applications at multiple wavelengths.